CLAIMS

We claim:

1. A method for preparing a polymeric polyol which comprises copolymerizing a multifunctional epoxide resin, tetrahydrofuran (THF) and water in the presence of an amount of acid effective for polymerizing the epoxide resin, THF and the water, the amount of water being sufficient to avoid gelation, the copolymerization being a non-dispersion process.

2. The method of Claim 1 in which the copolymerization is performed in the presence of a water miscible ether solvent.

3. The method of Claim 2 in which the solvent comprises excess THF.

4. The method of Claim 1 in which the epoxide is a diglycidyl ether of bisphenol-A, an advanced diglycidyl ether of bisphenol-A, a diglycidyl ether of bisphenol-F or an epoxy novolac resin.

5. The method of Claim 1 in which the acid is a Brønsted acid having a pKa ≤ 0.

6. The method of Claim 1 in which the acid is a Brønsted superacid.

7. The method of Claim 1 in which the acid is perchloric acid, trifluoromethane-sulfonic acid, perfluoroalkylsulfonic acid, tetrafluoroboric acid, hexafluorophosphoric acid or boron trifluoride.

8. The method of Claim 1 in which the minimum amount of water is about 5 to 20 g water per 100 g of epoxide resin.

9. The method of Claim 1 in which the amount of THF is about 3 to 300 wt% of the epoxide resin.

10. The method of Claim 1 in which the amount of THF is about 20 to 150 wt% of the epoxide resin.

11. A method for preparing a polymeric polyol which comprises copolymerizing a multifunctional epoxide resin, which is a diglycidyl ether of bisphenol-A, an advanced diglycidyl ether of bisphenol-A, a diglycidyl ether of bisphenol-F or an epoxy novolac resin, tetrahydrofuran (THF) and water in the presence of an amount of a superacid effective for such copolymerization, the amount of water being sufficient to avoid gelation, the amount of THF being 3 to 300 wt% of the epoxide resin and the copolymerization being a non-dispersion process.

12. The method of Claim 11 in which the THF is 20 to 150 wt% of the epoxide resin.

13. The method of Claim 12 in which the minimum amount of water is about 5 to 20 g per 100 g of epoxide resin.

14. The method of Claim 13 in which the epoxide resin is the diglycidyl ether of bisphenol-A.

15. The method of Claim 14 in which the acid is perchloric acid, trifluoromethanesulfonic acid, perfluoroalkylsulfonic acid, tetrafluoroboric acid, hexafluorophosphoric acid or boron trifluoride.

16. The method of Claim 11 in which the acid is perchloric acid, trifluoromethanesulfonic acid, perfluoroalkylsulfonic acid, tetrafluoroboric acid, hexafluorophosphoric acid or boron trifluoride.

17. The method of Claim 11 in which the acid is perchloric acid.

18. The method of Claim 11 in which the amount of acid is 0.001 to 1 eq/L

19. A method for preparing a polymeric polyol which comprises copolymerizing a diglycidyl ether of bisphenol-A, tetrahydrofuran (THF) and water in the presence of a superacid at 0.001 to 1 eq/L, the minimum amount of water being about 7.5 wt% of the diglycidyl ether of bisphenol-A, the amount of THF being 3 to 300 wt% of the diglycidyl ether of bisphenol-A and the copolymerization being a non-dispersion process.

20. The method of Claim 19 in which the acid is perchloric acid, trifluoromethanesulfonic acid, perfluoroalkylsulfonic acid, tetrafluoroboric acid, hexafluorophosphoric acid or boron trifluoride.

21. The method of Claim 20 in which the amount of water is 2.5 to 8 g per 100 g diglycidyl ether of bisphenol-A.

22. A coating composition comprising a polymeric polyol made according to the method of Claim 1 and a hydroxyl group-reactive crosslinking agent.

23. A coating composition comprising a polymeric polyol made according to the method of Claim 11 and a hydroxyl group-reactive crosslinking agent.

24. The coating composition of Claim 22 in which the crosslinking agent is an amino resin or a multifunctional isocyanate.

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